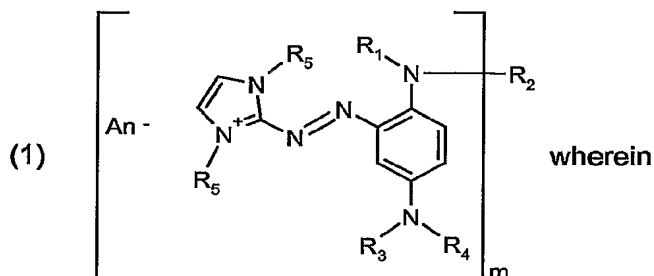
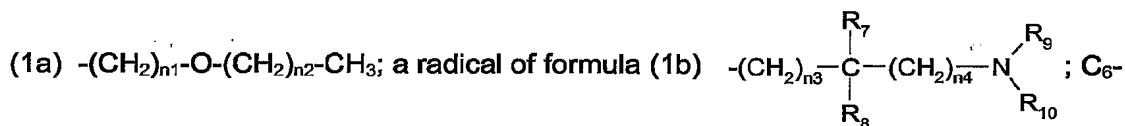


Claims:

## 1. Dye of formula



$R_1$  is hydrogen;  $C_1$ - $C_{14}$ alkyl; hydroxy-  $C_1$ - $C_{14}$ alkyl;  $C_2$ - $C_{14}$ alkenyl; a radical of formula



$C_{10}$ aryl; or  $C_6$ - $C_{10}$ aryl- $C_1$ - $C_6$ alkyl;

$R_3$  is hydrogen;  $C_1$ - $C_{14}$ alkyl;  $C_2$ - $C_{14}$ alkenyl;  $C_6$ - $C_{10}$ aryl;  $C_6$ - $C_{10}$ aryl- $C_1$ - $C_6$ alkyl; or  $CO-R_6$ ;

$R_4$  is  $CO-R_6$ ;

$R_5$  is  $C_1$ - $C_{14}$ alkyl;  $C_2$ - $C_{14}$ alkenyl;  $C_6$ - $C_{10}$ aryl; or  $C_6$ - $C_{10}$ aryl- $C_1$ - $C_6$ alkyl;

$R_6$  is hydrogen;  $C_1$ - $C_{14}$ alkyl;  $C_2$ - $C_{14}$ alkenyl; or  $C_6$ - $C_{10}$ aryl;

$R_7$ ,  $R_8$ ,  $R_9$  and  $R_{10}$ , independently from each other are hydrogen; or  $C_1$ - $C_5$ alkyl;

$m$  is 1; or 2;

$An^-$  is an anion;

If  $m = 1$ ,

$R_2$  is hydrogen;  $C_1$ - $C_{14}$ alkyl;  $C_2$ - $C_{14}$ alkenyl; a radical of formula (1a); a radical of formula (1b);  $C_6$ - $C_{10}$ aryl; or  $C_6$ - $C_{10}$ aryl- $C_1$ - $C_6$ alkyl;

If  $m = 2$ ,

$R_2$  is the direct bond; or  $C_1$ - $C_{14}$ alkylene, which is optionally substituted by one or more  $C_1$ - $C_4$ alkyl, or which is optionally interrupted by  $C_5$ - $C_{10}$ arylene, -O- or - $NR_9R_{10}$ ;

$R_9$  and  $R_{10}$ , independently from each other are hydrogen; or  $C_1$ - $C_5$ alkyl; and

$n_1$ ,  $n_2$ ,  $n_3$  and  $n_4$ , independently from each other are a number from 0 to 5.

## 2. Dye according to claim 1, wherein

- 63 -

the anion is selected from a halide, sulfate, hydrogen sulfate, phosphate, boron tetrafluoride, carbonate, bicarbonate, oxalate or C<sub>1</sub>-C<sub>8</sub>alkyl sulfate, lactate, formate, acetate, propionate and a complex anion.

3. Dye according to claim 1 or 2, wherein

R<sub>1</sub> is hydrogen; or C<sub>1</sub>-C<sub>14</sub>alkyl;

R<sub>3</sub> is hydrogen; or C<sub>1</sub>-C<sub>14</sub>alkyl;

R<sub>4</sub> is CO-R<sub>6</sub>;

R<sub>5</sub> is C<sub>1</sub>-C<sub>14</sub>alkyl;

R<sub>6</sub> is hydrogen; C<sub>1</sub>-C<sub>14</sub>alkyl; or C<sub>6</sub>-C<sub>10</sub>aryl;

m is 1; or 2;

An<sup>-</sup> is an anion;

If m = 1,

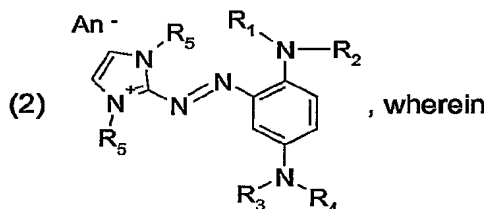
R<sub>2</sub> is hydrogen; C<sub>1</sub>-C<sub>14</sub>alkyl; hydroxy-C<sub>1</sub>-C<sub>14</sub>alkyl a radical of formula (1a); or a radical of formula (1b);

if m = 2,

R<sub>2</sub> is the direct bond; or C<sub>1</sub>-C<sub>12</sub>alkylene, which is optionally substituted by one or more C<sub>1</sub>-C<sub>4</sub>alkyl or interrupted by -O-, or NR<sub>9</sub>R<sub>10</sub>; and

R<sub>9</sub> and R<sub>10</sub> independently from each other are hydrogen; or C<sub>1</sub>-C<sub>5</sub>alkyl.

4. Dye according to any of claims 1 to 3, which correspond to formula



R<sub>1</sub> is hydrogen; or C<sub>1</sub>-C<sub>14</sub>alkyl;

R<sub>2</sub> is hydrogen; C<sub>1</sub>-C<sub>14</sub>alkyl; a radical of formula (1a); or a radical of formula (1b);

R<sub>3</sub> is hydrogen; or C<sub>1</sub>-C<sub>14</sub>alkyl;

R<sub>4</sub> is CO-R<sub>6</sub>;

R<sub>5</sub> is C<sub>1</sub>-C<sub>14</sub>alkyl;

R<sub>6</sub> is hydrogen; C<sub>1</sub>-C<sub>14</sub>alkyl; or C<sub>6</sub>-C<sub>10</sub>aryl; and

An<sup>-</sup> is an anion.



- 65 -

$R_2$  is the direct bond; or  $C_1$ - $C_8$ -alkylene, which is optionally substituted by one or more  $C_1$ - $C_4$ alkyl or interrupted by  $-O-$ , or  $NR_9R_{10}$ ;

$R_3$  is hydrogen; or  $C_1$ - $C_4$ alkyl;

$R_4$  is  $CO-R_6$ ;

$R_5$  is  $C_1$ - $C_4$ alkyl;

$R_6$  is  $C_1$ - $C_4$ alkyl;

$R_9$  and  $R_{10}$  independently from each other are hydrogen; or  $C_1$ - $C_5$ alkyl; and

$An^-$  is an anion.

9. Dye according to claim 7 or 8, wherein

$R_1$  is hydrogen; or  $C_1$ - $C_4$ alkyl;

$R_2$  is the direct bond; or  $C_1$ - $C_8$ -alkylene, which is optionally substituted by one or more  $C_1$ - $C_4$ alkyl or interrupted by  $-O-$ , or  $NR_9R_{10}$ ;

$R_3$  is hydrogen; or  $C_1$ - $C_4$ alkyl;

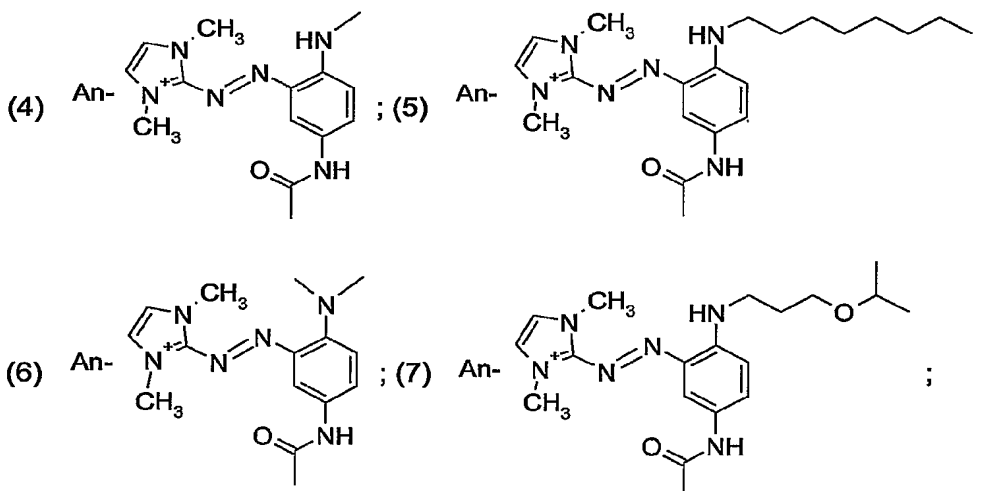
$R_4$  is  $CO-CH_3$ ;

$R_5$  is  $C_1$ - $C_4$ alkyl;

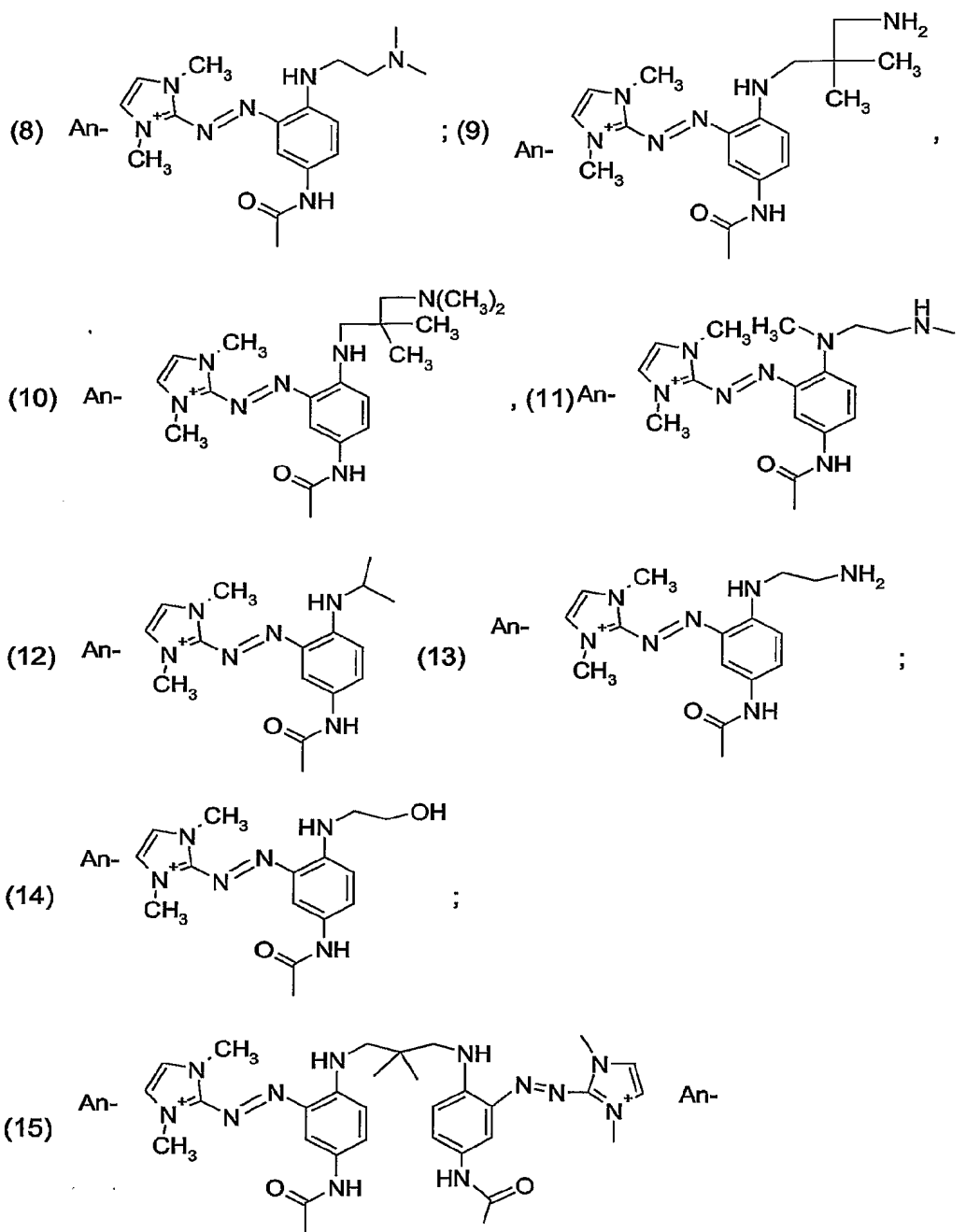
$R_9$  and  $R_{10}$  independently from each other are hydrogen; or  $C_1$ - $C_5$ alkyl; and

$An^-$  is an anion.

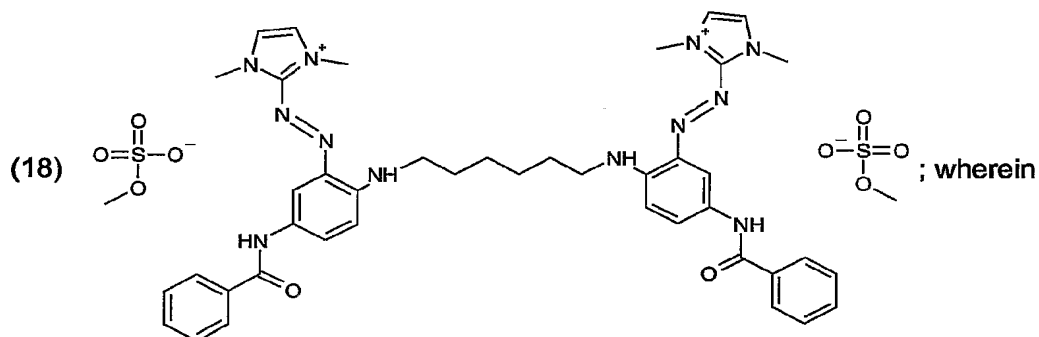
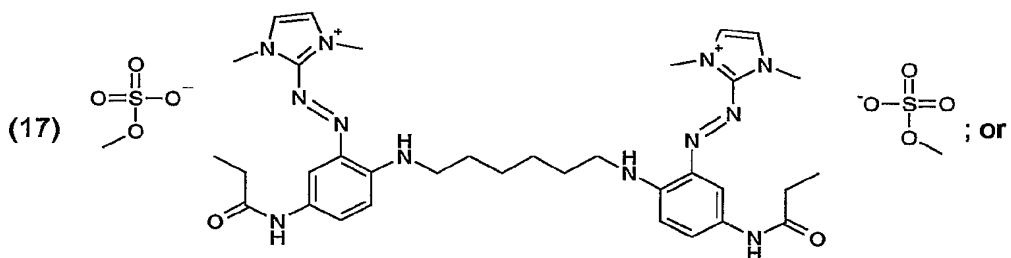
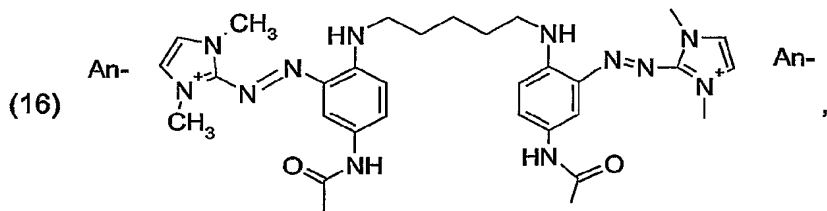
10. Dye according to any of claims 1 to 9 of formula



- 66 -

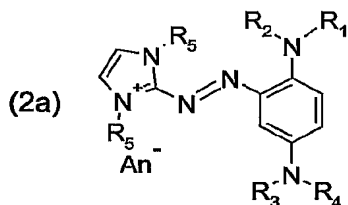


- 67 -



An<sup>-</sup> is an anion.

#### 11. A dye of formula



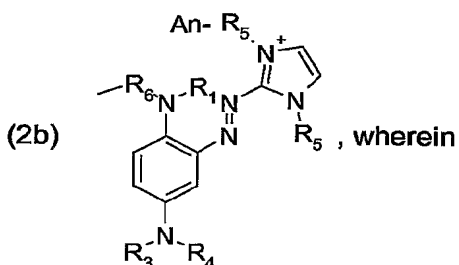
wherein

R<sub>1</sub> and R<sub>2</sub> are each independently of the other hydrogen; or unsubstituted or substituted C<sub>1</sub>-C<sub>14</sub>alkyl, allyl, aralkyl, preference is given to C<sub>1</sub>-C<sub>8</sub>alkyl, more preference to C<sub>1</sub>-C<sub>4</sub>alkyl, and most preference is given to methyl and ethyl, and especially most preference is given to methyl; or

- 68 -

$R_1$  is hydrogen, or unsubstituted or substituted  $C_1$ - $C_{14}$ alkyl, allyl, aralkyl, preference is given to  $C_1$ - $C_8$ alkyl, more preference to  $C_1$ - $C_4$ alkyl, and most preference is given to methyl and ethyl, and especially most preference is given to methyl, and

$R_2$  is substituent of formula



$R_6$  is unsubstituted or substituted  $C_1$ - $C_{14}$ alkyl; and

$R_3$  is hydrogen or an unsubstituted or substituted  $C_1$ - $C_{14}$ alkyl, allyl, aralkyl or  $CO-R_1$ ;

$R_4$  is  $CO-R_9$ ;

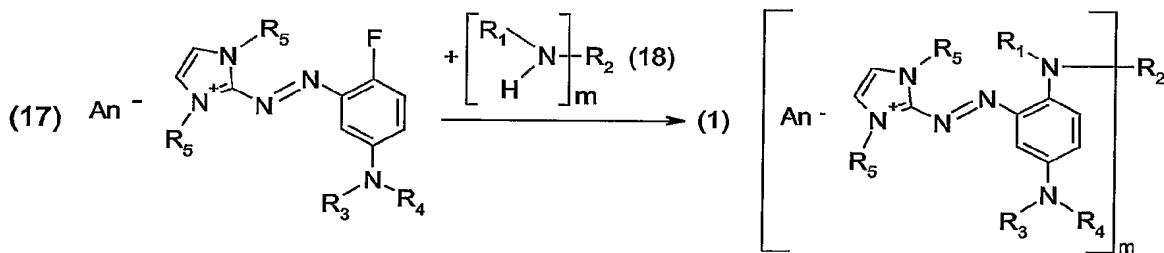
$R_5$  is unsubstituted or substituted  $C_1$ - $C_{14}$ alkyl, allyl or aralkyl;

$R_9$  is hydrogen; or unsubstituted or substituted  $C_1$ - $C_{14}$ alkyl, allyl or aralkyl, preference is given to unsubstituted  $C_1$ - $C_{14}$ alkyl, and more preference to methyl;

and

$An^-$  is an anion.

12. A process for the preparation of dyes of formula (1) as defined in claim 1, comprising reacting a dye of formula (17) with an amine of formula (18) to give a compound of formula (1) according to the following reaction scheme:

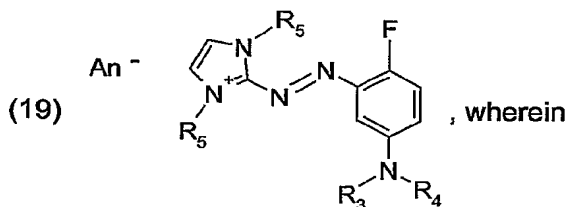


wherein

$R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$ ,  $R_5$ ,  $m$  and  $An^-$  are defined as in claim 1.

13. Process for the preparation of dye of formula

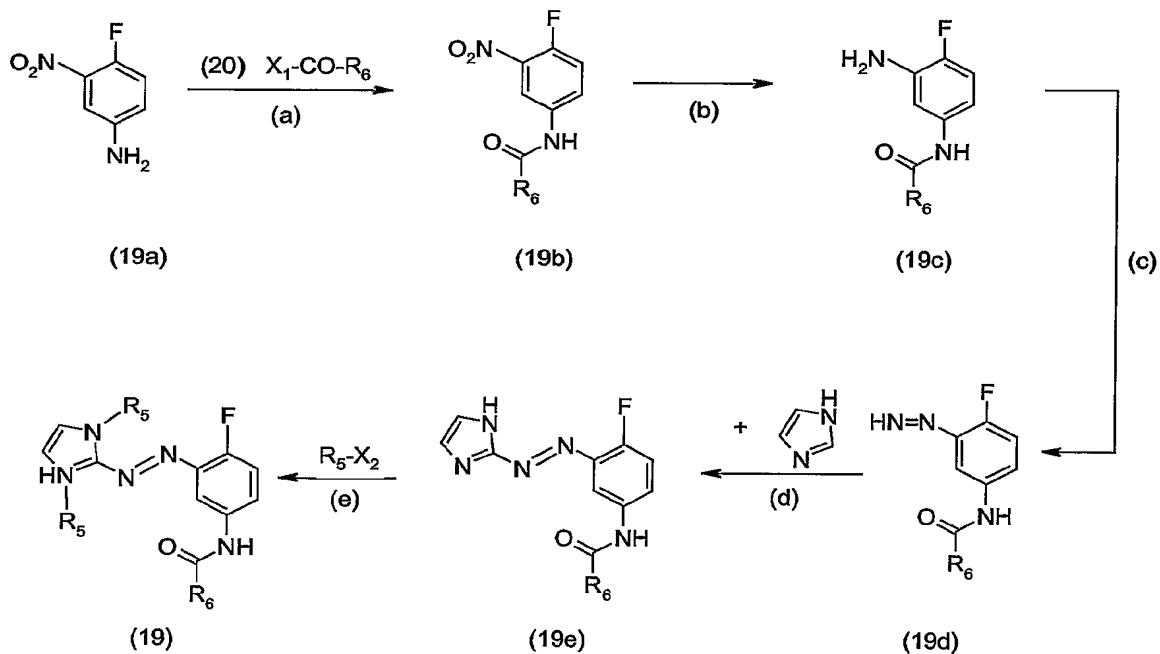
- 69 -



$R_3$  is hydrogen; an

$R_4$  is  $\text{CO-R}_6$ , which is characterized by

- (a) acylating a 4-fluoro-3-nitroanil. of formula (19a) with an acylating agent of formula (20)
- (b) reducing the nitro group in formula (19b) to the amino group to give the compound of formula (19c),
- (c) diazotizing the compound of formula (19c) to give the compound of formula (19d),
- (d) coupling the diazotized compound of formula (19d) with imidazole to give the compound of formula (19e), and
- (e) alkylating the compound of formula (19e) with an alkylating agent to give the compound of formula (19), according to the following reaction scheme:



wherein

$R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$ ,  $R_5$  and  $R_6$  are defined as in claim 1; and

$X_1$  and  $X_2$  are halogen.

- 70 -

14. A composition comprising at least one dye of formula (1) as defined in claim 1.

15. A composition according to claim 14 comprising in addition at least one single further direct dye and/or an oxidative agent.

16. A composition according to claim 14 comprising in addition at least one single oxidative dye and/or; at least one single oxidative dye and an oxidative agent.

17. A composition according to any one of claims 14, 15 or 16 in form of a shampoo, a conditioner, a gel or an emulsion.

18. A method of dyeing organic material, which comprises treating the organic material with at least one dye of formula (1) according to claim 1, or a composition according to any of claims 14 to 17.

19. A method according to claim 18, which comprises treating the organic material with at least one dye of formula (1) as defined in claim 1 and an oxidative agent and, optionally, a further direct dye.

20. A method according to claim 18 and 19, which comprises treating the organic material with at least one compound of formula (1) as defined in claim 1 and at least one single oxidative dye, or treating the organic material with a dye of formula (1) as defined in claim 1 and at least one single oxidative dye and an oxidative agent.

21. A method according to any of claims 18 to 20 wherein the organic material is selected from keratin-containing fibers.

22. A method according to claim 21 wherein the keratin-containing fiber is human hair.